

Stamina 6, lobi antherae ovati, extrinsecus reflexi, flavi. Carpellum late rotundatum compressum, 2.0-2.5 x 1.5-1.75 mm, uniloculare, ovuli affixi in quoque latere in placentatione parietali, pauci (4-8). Carpellum aperiens a valvis; stylus parvus, stigma fusca. (Fructi maturi non visi).

**Typus:** INDIA, Northwest Himalaya, Roopkund (4850 m), 11th Aug., 1993, *D.S. Rawat*, Holotypus GUH 22,498 A; Isotypus GUH- 22,498 B.

Small acaulescent perennial herbs with long rootstock. Rootstock branched above, each branch carrying a terminal rosette of leaves. Leaves spatulate, long petioled, 6.0-12.0 x 2.0-4.0 mm, succulent. Scapes single flowered, directly arising from the rootstock from the centre of the rosette of leaves, 6.0-10.0 mm long, sparsely glandular. Sepals 4, ovate, green with white papery margins, glandular outside, 1.5-2.0 x 0.75-1.0 mm. Petals 4, creamy white, bifid at the tip, obovate, 2.0-3.0 x 1.0-2.0 mm. Annular nectariferous gland present between petals and stamens. Stamens 6, anther lobes ovate, reflexed outward, yellow. Carpel broadly rounded, compressed, 2.0-2.5 x 1.5-1.75 mm, unilocular, ovules attached on either sides in the parietal

placentation, few (4-8). Carpel opening through valves; style small, thick; stigma dark (mature fruits not seen).

**Flowering:** August.

**Habitat:** Among the boulders and scree near snow-line.

The species is allied to *Dilophila salsa* Thoms. but differs from it in having only radical leaves (differently shaped radical and cauline leaves in *D. salsa*), radical leaves being spatulate. Flowers in *D. purii* are solitary on slender scapes which arise directly from the rootstock in the centre of leaf rosette while *D. salsa* has a condensed and compact raceme of 10-20 flowers. Furthermore pedicels and sepals (outside) are glandular in *D. purii*.

#### ACKNOWLEDGEMENTS

We thank Dr. V.J. Nair, Royal Botanic Gardens, Kew for his critical comments and Prof. H. Ohba, University of Tokyo, Japan for providing literature. Thanks are also due to Dr. N. C. Majumdar for latin diagnosis. The senior author (DSR) is thankful to UGC, New Delhi for financial assistance.

## A REMARKABLE NEW GENUS OF BRACONIDAE (HYMENOPTERA) FROM INDIA<sup>1</sup>

C.G. Rema and T.C. Narendran<sup>2</sup>

(With six text-figures)

A new Braconid genus, namely *Neoclarkinella* gen. nov. of the subfamily Microgastrinae from India is described and its affinities discussed.

#### INTRODUCTION

In continuation of our studies on Indian Braconidae (Narendran *et al.* 1992, 1996; Sumodan and Narendran 1990), we found out that the species described by Sumodan and Narendran (1990) from Nilambur, actually belongs to a remarkable genus new to science and not to the common genus *Apanteles* Foerster as thought by Sumodan and Narendran (1990). This new genus is described

hereunder and its affinities are described. The species is also redescribed adding further details for identification based on fresh materials.

**Neoclarkinella** gen. nov.

**Type species:** *Apanteles nilamburensis* Sumodan & Narendran

**Diagnosis:** Scutellum broad and slightly convex. Scutellar lunules large and triangular. Forewing with radius shorter than first intercubitus. Forewing without areolet. Margin of vannal lobe of hindwing nearly flat and with few sparse hairs.

<sup>1</sup>Accepted March 1996.

<sup>2</sup>Department of Zoology, University of Calicut, Kerala-673 635.

Propodeum dull with a strong midlongitudinal carina and rather weak transverse carina basally.

T1 about 4x as long as its apex, aciculate and narrowed at apex. Hypopygium large and striated along median line. Ovipositor longer than hind tibia. Ovipositor sheath hairy throughout, 0.6x as long as hind tibia.

**Remarks:** *Neoclarkinella* closely resembles the genus *Clarkinella* Mason (Mason 1981) in having propodeum with a complete median carina and a transverse basal carina; T1 parallel sided on the basal half, thence strongly tapered to a narrow apex, hypopygium about half as long as abdomen, ovipositor sheath long and hairy throughout. *Neoclarkinella* however differs from *Clarkinella* Mason in having large and triangular scutellar lunules (lunule of scutellum small and arcuate in *Clarkinella*), forewing without areolet (small areolet present in *Clarkinella*), radius shorter than first intercubitus (radius longer than first intercubitus in *Clarkinella*), transverse carina of propodeum not forming a fork on either side of spiracle (transverse carina of propodeum sending a fork on either side of the spiracle in *Clarkinella*), T1 aciculate (T1 mostly smooth except for small area of finely aciculate or granular sculpture centrally in *Clarkinella*), hypopygium striate along median line (hypopygium not striate along median line in *Clarkinella*).

*Neoclarkinella* also resembles the genus *Xenogaster* Mason (Mason 1981) in having coarsely punctate mesonotum, forewing without areolet, propodeum with a midlongitudinal carina and a basal transverse carina, T2 subtriangular and T3 longer than T2, ovipositor sheath hairy throughout their pigmented part. But *Neoclarkinella* differs from *Xenogaster* Mason in having large and triangular scutellar lunules (lateral lunules of scutellum absent in *Xenogaster*), propodeum dull (propodeum mostly shiny in *Xenogaster*), T1 about 4x as long as its apex, narrowed at the apex and without a median groove (in *Xenogaster* T1 nearly twice as long as wide, basally parallel sided, broadly rounded on the apical 0.4 and with a sharp median groove basally), ovipositor longer than hind tibia

(ovipositor shorter than hind tibia in *Xenogaster*), hypopygium large, nearly half as long as abdomen, striated along the median line (in *Xenogaster* hypopygium short and not striated).

***Neoclarkinella nilamburensis*** (Sumodan & Narendran) comb. nov.  
(Figs. 1-6)

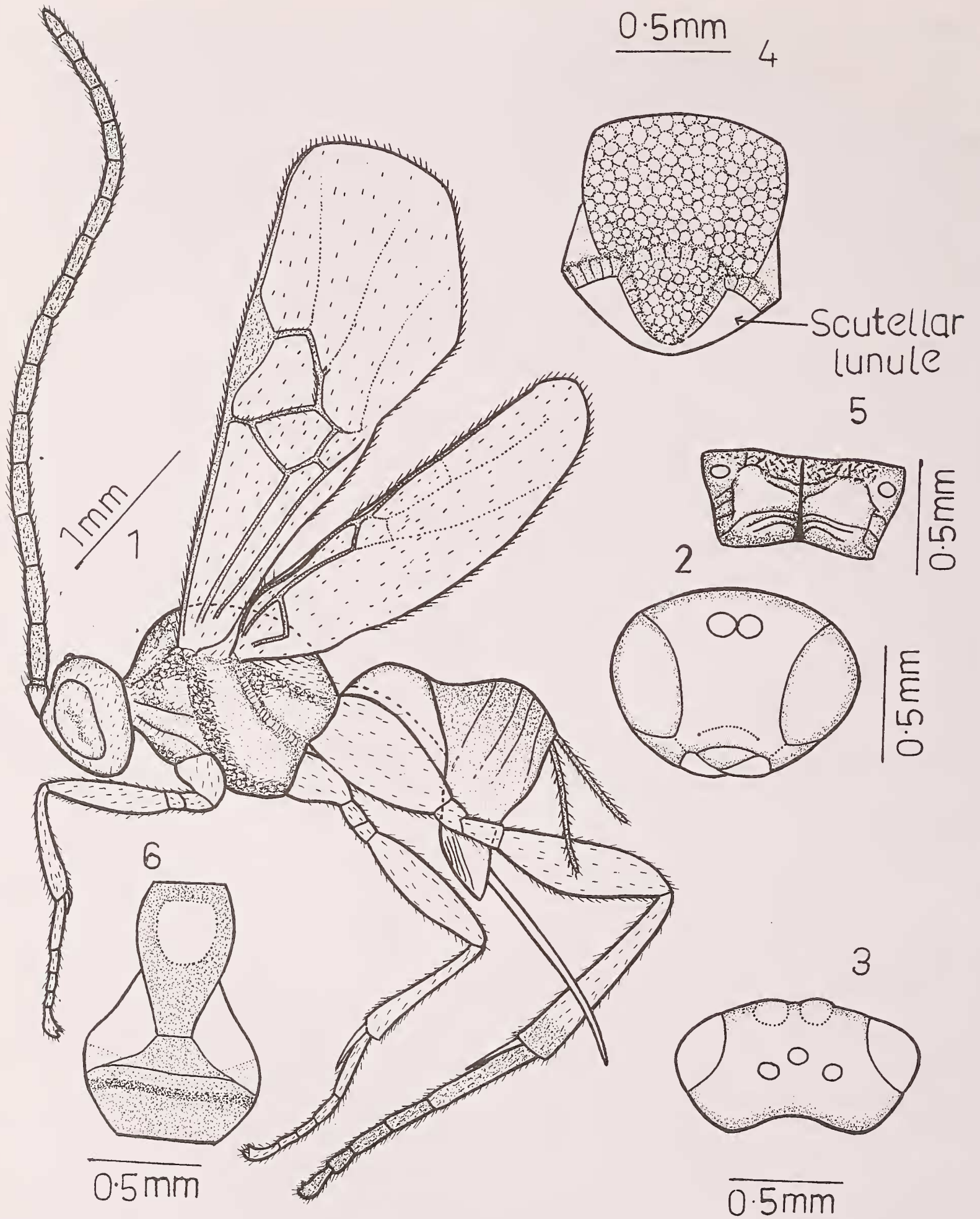
*Apanteles nilamburensis* Sumodan & Narendran, 1990. J. Ecol. 2(3), p.239 (DZCU) examined.

Metatype FEMALE: Length 2.9 mm (excluding ovipositor) ovipositor 1.4 mm; forewing 3 mm; antenna 3.7 mm. Head and thorax black, mandibles yellow; eyes brown with black patches; antenna black (except basal part of scape), scape testaceous basally; ocelli shining yellow; wings hyaline; tegula yellow, stigma and wing veins dark brown; fore and mid legs honey yellow, hind leg honey yellow except apex of hind tibia and hind tarsi which are dark brown; tibial spur pale yellow; tergites black except (T1 having U shaped yellow part basally); ovipositor yellow; ovipositor sheath black.

**Head:** Transverse, width 2x as its length; occiput smooth, vertex punctate, pubescent; OOL: POL-3:4; antenna longer than the body, all flagellomeres with 2 ranks of placodes. Flagellar formula:  $2L/W=3.6$ ,  $14L/W=2$ ,  $8L/W=3$ ,  $L2/14=1.8$ ,  $W2/14=1$ ; face lightly punctate, pubescent with a faint median longitudinal carina; eye length : malar space 9:2.

**Thorax:** Both upper and lower grooves of side of pronotum deep and crenulate, the area between them punctate; mesoscutum coarsely punctate, pubescent; prescutellar furrow crenulated; disc of scutellum coarsely punctate, sparsely pubescent; propodeum dull with a strong mid-longitudinal carina and a transverse carina at basal one-third, remaining parts with few carinulae.

**Wings:** Stigma shorter than metacarp, breadth of stigma shorter than r, r shorter than r-m, breadth of stigma equal to recurrent; hind coxa shiny, punctate, longer than first three tergites combined, longer hind tibial spur longer than half metatarsus



Figs.1-6. *Neoclarkinella nilamburensis* comb. nov.: 1. Body profile; 2.Head front view; 3.Head dorsal view; 4.Mesoscutum and scutellum; 5.Propodeum; 6.T1-T3 (Tergite 1-Tergite 3).

and shorter spur one-third of it.

**Gaster:** T1 at apex 0.43x as wide as base, aciculate; T2 length 0.23x length of T1, 0.6x of T3, apical width 3x length, basal width = length; T3 longer than T2, T2 and T3 almost smooth, but sparsely punctate at apex, T3 with a transverse depression basally; remaining tergites smooth and laterally compressed; ovipositor sheath longer than metatarsus, but shorter than hind femora; hypopygium about half as long as abdomen, 0.5x as long as hind tibia, apical and ventral margins, in profile, making an angle of 50°.

MALE: Characters same as that of female.

Metatype FEMALE: INDIA, Kerala, Anakatty, T.C. Narendran, 7.i.1989. Other materials examined: 1 Male, INDIA, Kerala, Neendakara, T.C. Narendran, 22.ii.1987; 1 Male, INDIA, Kerala, C.U. Campus,

T.C. Narendran, 1988. (All specimens deposited in the collections of Department of Zoology, University of Calicut).

**Note:** Apart from the above materials the original Holotype and Paratypes of *Apanteles nilamburensis* Sumodan and Narendran (1990) were also studied.

**Etymology:** *Neoclarkinella*, name derived from *Clarkinella*, owing to the close resemblance of this genus to *Clarkinella* Mason.

#### ACKNOWLEDGEMENTS

We are grateful to the Council of Scientific and Industrial Research and to the University of Calicut for financial assistance and facilities for our studies.

#### REFERENCES

- MASON, W.R.M.(1981): The polyphyletic nature of *Apanteles* Foerster (Hymenoptera : Braconidae): A phylogeny and reclassification of Microgastrinae. *Mem.Ent.Soc.Canada* 115: 1-147.
- NARENDRAN, T.C., P.K. SUMODAN & C.G. REMA (1992): A study of Indian species of *Chelonus* Panzer (Hymenoptera: Braconidae). *J.Zool.Soc. Kerala* 2(2):1-9.
- NARENDRAN, T.C., C.G. REMA & M. MADHAVIKUTTY (1996): Three new species of *Cassidibracon* Quicke (Hymenoptera: Braconidae) from India. *Bioved J.* 5(2): 125-132.
- SUMODAN, P.K. & T.C. NARENDRAN (1990): Five new species of *Apanteles* Foerster (Hymenoptera: Braconidae) from Kerala, India. *J. Ecobiol.* 2(3): 239-248.

## THE GENUS *MACROCHELES* LATREILLE (ACARINA: MACROCHELIDAE) IN INDIA - ADDITIONAL NEW SPECIES AND NEW RECORDS ASSOCIATED WITH DUNG BEETLES (COLEOPTERA: SCARABAEIDAE) FROM SOUTH INDIA<sup>1</sup>

RANJIT KUMAR ROY<sup>2</sup>

(With sixteen text-figures)

Additional new species of insecticolous *Macrocheles*, namely *M. erichsonii* and *M. quadrilineatus* are described from South India. In addition, the paper presents further distributional records for *M. malabaricus* Evans & Hyatt, *M. nevernalis* Evans & Hyatt, *M. ceylonicus* Evans & Hyatt from Peninsular India.

#### INTRODUCTION

In part IV of the series (Roy 1994a), two new species of insecticolous *Macrocheles*, namely *M. punctovariata* and *M. sisiri* were described from

Karnataka. The present contribution describes two more new species from South India. The present paper is based on material recovered from dung beetles collected from Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. In addition to the description of two new species (*M. erichsonii* and *M. quadrilineatus*), the paper gives new distributional records for *M. malabaricus*, *M. nevernalis* and *M. ceylonicus* described by Evans and Hyatt (1963).

<sup>1</sup>Accepted February 1996. This is the seventh paper in the series. "Studies on Indian Macrocheles".

<sup>2</sup>Department of Zoology, Dibrugarh Hanumanbox Surajmal Kanoi College, Dibrugarh - 786001, Assam, India.